

Application No. 09/599,000  
Amendment Dated April 6, 2006  
Reply to Office Action of February 6, 2006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently Amended) An apparatus at a node in a network comprising:

~~at least one~~ a first work queue pair comprising descriptors to describe data to be transmitted from a first node to a remote node of a local network and to describe where to store ~~received data~~ received from the remote node to establish a connection-oriented virtual interface (VI) channel between a the first node and ~~each of one or more other nodes~~ the remote node in a the local network based on a local physical address ~~addresses of the other nodes~~ remote node, wherein the remote node comprises a second work queue pair and wherein the connection-oriented VI channel is established by associating the first work queue pair with the second work queue pair;

~~a channel adapter coupled to the VI~~ a first work queue pair, the channel adapter to interface a host to a switched fabric; and

an emulation driver coupled to the channel adapter, the emulation driver mapping a legacy physical address to a the local physical address of a the remote node of a the local network, the channel adapter mapping the local physical address of the remote node to a the established connection-oriented VI channel to communicate with the remote node.

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2. (Original) The apparatus of claim 1 wherein the local physical address of the remote node is embedded or provided within the legacy physical address of the remote node.

3. (Original) The apparatus of claim 1 wherein the legacy physical address comprises a MAC address for use in an existing or legacy network.

4. (Original) The apparatus of claim 1 wherein the legacy physical address comprises a IEEE 802.3 Ethernet MAC address.

5. (Original) The apparatus of claim 1 and further comprising a protocol stack coupled to the emulation driver, the protocol stack implementing a legacy protocol and mapping a network address to a legacy physical address for each of a plurality of nodes.

6. (Currently Amended) A node apparatus comprising:  
a channel adapter to interface a host to a switched fabric;  
an emulation driver coupled to the channel adapter, the emulation driver mapping a first physical address of a remote node to a second physical address of the remote node, the channel adapter mapping the second physical address of the remote node to a channel to communicate with the remote node, wherein the second physical address is embedded within the first physical address; and

a first virtual interface (VI) work queue pair coupled to the host to establish a ~~connection-oriented~~ VI channel between the host and the remote node of the local

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network, wherein the first work queue pair comprises descriptors to describe data to be transmitted to the remote node and to describe where to store ~~received~~ data received from the remote node, wherein the remote node comprises a second work queue pair and wherein the VI channel is established by associating the first work queue pair with the second work queue pair.

7. (Original) The apparatus of claim 6 wherein first physical address comprises a legacy or global physical address, and wherein the second physical address comprises a local physical address.

8. (Original) The apparatus of claim 7 wherein the legacy physical address comprises a MAC address for use in an existing or legacy network.

9. (Original) The apparatus of claim 7 wherein the legacy physical address comprises a IEEE 802.3 Ethernet MAC address.

10. (Original) The apparatus of claim 7 wherein the local physical address can be used by the node apparatus for communication with other nodes on the local network.

11. (Cancelled)

12. (Original) The apparatus of claim 6 wherein the channel adapter comprises an ATM NIC for interfacing to an ATM network.

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13. (Original) The apparatus of claim 6 wherein the channel adapter comprises a host channel adapter.

14. (Currently Amended) A method comprising:

establishing a connection-oriented virtual interface (VI) channel between a first node and each of multiple other nodes in a network based on local physical addresses of the other nodes using a first work queue pair at the first node and multiple work queue pairs at each of the multiple other nodes, wherein the first work queue pair comprises descriptors to describe data to be transmitted and to describe where to store received data, and wherein the connection-oriented VI channel is established by associating the first work queue pair with each of the multiple other work queue pairs; and

determining a first physical address to a network address correspondence for a node of the network using a single address resolution protocol (ARP) and determining a first physical address to a second physical address correspondence for the node in the network, wherein the second physical address is embedded or provided within the first physical address.

15. (Cancelled).

16. (Cancelled).

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17. (Original) The method of claim 14 wherein the first physical address comprises a legacy or global physical address, while the second physical address comprises a local physical address.

18. (Original) The method of claim 17 wherein the legacy physical address comprises a MAC address for use in an existing or legacy network.

19. (Original) The method of claim 17 wherein the legacy physical address comprises a IEEE 802.3 Ethernet MAC address.

20. (Original) The method of claim 17 wherein the network address comprises an (Internet Protocol) IP address.

21. (Previously Presented) A method comprising:

- obtaining a local physical address for a first node of a network;
- obtaining a legacy or global physical address for the first node based on the local physical address of the first node;
- obtaining a local physical address for one or more other nodes in the network;
- establishing a connection-oriented virtual interface (VI) channel between the first node and each of the one or more other nodes in the network based on local physical addresses of the other nodes using a work queue pair, wherein the work queue pair comprises descriptors to describe data to be transmitted and to describe where to store received data;

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using a legacy protocol to broadcast a request message over each of the established VI channels to obtain a network address of the first node.

22. (Original) The method of claim 21 and further comprising:

using the legacy protocol to obtain a global physical address corresponding to a network address of a selected one of the other nodes;

determining the local physical address based on the global address of the selected one of the other nodes.

23. (Original) The method of claim 21 wherein the network address comprises an IP address.

24. (Original) The method of claim 21 wherein the local physical address of each node is embedded or provided within the legacy or global physical address of the node.

25. (Original) The method of claim 21 wherein the establishing a connection-oriented VI channel comprises establishing a many-to-many work queue bindings between the first node and the one or more other nodes in the network.

26. (Original) The method of claim 21 wherein the establishing a connection-oriented VI channel comprises establishing a one-to-many work queue bindings between the first node and the one or more other nodes, respectively, in the network.

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27. (Previously Presented) A method comprising:

establishing a virtual interface (VI) channel between a first node and each of a plurality of other nodes in the network using a work queue pair, wherein the work queue pair comprises descriptors to describe data to be transmitted and to describe where to store received data;

using a legacy protocol to broadcast a request message over the VI channels including a network address;

receiving a response message including a global or legacy physical address corresponding to the network address;

determining a local physical address corresponding to the legacy physical address based on the legacy physical address without use of a specialized address request protocol.

28. (Original) The method of claim 27 wherein the establishing a VI channel comprises establishing a many-to-many work queue bindings between the first node and the plurality of other nodes in the network.

29. (Original) The method of claim 27 wherein the establishing a VI channel comprises establishing a one-to-many work queue bindings between the first node and the plurality of other nodes, respectively, in the network.

30. (Original) The method of claim 27 wherein the local physical address is embedded within the global or legacy address of the node.

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31. (Previously Presented) A method of communicating a message over a channel based network comprising:

obtaining a local physical address for a first node of a network;

obtaining a legacy or global physical address for the first node based on the local physical address of the first node;

obtaining a local physical address for a second node in the network;

establishing a connection-oriented virtual interface (VI) channel between the first node and the second node based on the local physical address of the second node using a work queue pair;

generating a message to be sent to the second node, the second node including a global or legacy physical address;

mapping the global physical address of the second node to a local physical address of the second node;

mapping the local physical address of the second node to the VI channel established between the first and second nodes;

sending the message to the second node over the established VI channel.

32. (Original) The method of claim 31 wherein the local physical address is embedded in the global physical address of the second node.

33. (Previously Presented) A method of broadcasting or multicasting a message over a channel based network comprising:



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obtaining a local physical address for a first node of a network;  
obtaining a legacy or global physical address for the first node based on the local physical address of the first node;  
obtaining a local physical address for a plurality of second nodes in the network;  
establishing a virtual interface (VI) channel between a the first node and each of a the plurality of second nodes based on the local physical address of the plurality of second nodes using a work queue pair, wherein the work queue pair comprises descriptors to describe data to be transmitted and to describe where to store received data;  
generating a message to be sent;  
sending the message from the first node to each of the second nodes via each of the established VI channels.